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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/741,754

12/19/2000

Randy T. Pike

GCSD-1096(51114)

6488

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01/27/2004

EXAMINER

CRUZ, LOURDES C

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ART UNIT

PAPER NUMBER

2827

DATE MAILED: 01/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/741,754

Applicant(s)

PIKE ET AL.

Examiner

Lourdes Cruz

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 21-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 18
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21-24, 26, 28-31, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Nguyen (US5892279).

Nguyen discloses (See Figs 13-21):

- An electronic device comprising: a first member 42 comprising silicon (Col. 8, lines 2+); and a second member 38 comprising a low temperature co-fired ceramic (LTCC) material (Col. 5, lines 5+); said first and second members having opposing surfaces thereof anodically bonded together to form a hermetic seal (Col. 9, lines 36+) there-between.
- An electronic device according to Claim 21 wherein said first and second members have opposing generally planar major opposing surfaces (see that the above layers are shown as two layers with surfaces opposed to one another).
- An electronic device according to Claim 21 wherein at least one of said first and second members comprises at least one cooling structure therein (Col 7, line 62).

- An electronic device according to Claim 21 wherein said first member further comprises at least one first micro-fluidic cooling structure therein (Col. 7, line 65; also see fig. 15, number 60).
- An electronic device according to Claim 24 wherein said second member further comprises at least one second micro-fluidic cooling structure aligned with the at least one first micro-fluidic cooling structure (see fig. 10, reference numbers 60,42,38; see alignment of structures relative one another).
- An electronic device according to Claim 26 further comprising at least one integrated circuit (see IGBT 126) adjacent said at least one second micro-fluidic cooling structure.
- An electronic device according to Claim 28 wherein said at least one integrated circuit comprises electrical connections (see unlabeled wires); and wherein the second member comprises external electrical connections (see that unlabeled wires are connected to leads EP) connected to the electrical connections of said at least one integrated circuit.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 25,27,32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen.

See that Nguyen discloses all the above limitations. However, see that Nguyen fails to specifically disclose:

- said at least one first micro-fluidic cooling structure comprises **an evaporator**.
- said at least one second micro-fluidic cooling structure comprises at least one **micro-fluidic passageway**.

Although Nguyen fails to specifically describe an evaporator and a micro-fluidic passageway, any heated layer contacting the circulating fluid acts as an evaporating/evaporator. Also, see that for the fluid to circulate, or to even be present a passageway or cavity has to be present.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that a heated layer that drives heat away from the device would evaporate the existing fluid in a liquid containing heat-slug; that a passageway or cavity is needed in order to contain the fluid.

### ***Response to Arguments***

Applicant's arguments filed 09/11/2003 have been fully considered but they are not persuasive. See that Applicant argues:

- That Nguyen discloses "silicone gel" and not silicon. Applicant submits that there is clearly a typographical error in the Nguyen patent.
- That Nguyen fails to disclose first and second members having opposing surfaces that are anodically bonded together to form a hermetic seal.

The above are not persuasive because:

- See that the claims recite "comprising silicon". No where in the claim it is stated that the claimed first member consist exclusively of silicon. Silicone comprises silicon.
- 'Anodically bonded' is a statement of process that does not distinguish the present invention from that in the prior art. A "product by process" claim is directed to the product per se, no matter how actually made, In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Marosi et al, 218 USPQ 289; and particularly In re Thorpe, 227 USPQ 964, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or

obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that applicant has the burden of proof in such cases, as the above case law makes clear.

- See that while opposing surfaces have been claimed, these surfaces can be located anywhere on the members since a point of reference or plane of reference has not been defined. See that two areas can be on a same surface, on a same plane, and on apposite ends of a member.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Art Unit: 2827

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elle Cruz whose telephone number is (571) 272-1928. The examiner can normally be reached on M-F 10-6:30.

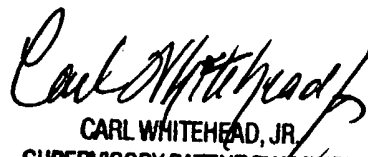
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammand Cuneo can be reached on (571) 272-1957. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Elle Cruz  
January 22, 2004

Lourdes Cruz  
Examiner  
Art Unit 2827



CARL WHITEHEAD, JR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800